CERTIFICATE OF MAILING PURSUANT TO 37 C.F.R. §1.8

I hereby certify that the attached Response and Amendment, pursuant to 37 C.F.R. § 1.8, are being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450:

Date: 25-Aug-2003 By: Scott C. Cape
Signature of Person Depositing First Class Mail

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

Applicant:	Scott Williams	Docket No.:	31844.0200
Serial No.:	10/017,412	Art Unit:	2829
Filed:	December 6, 2001	Examiner:	Nguyen, Vinh P.
Amended Title:	A PROBE CARD WITH REMOVABLE HEAD PLATE CONTAINING MULTIPLE BEAM ASSEMBLIES WITH MULTIPLE PROBES FOR HIGH PARALLEL TESTING	Confirmation No.	6467

RESPONSE AND AMENDMENT UNDER 37 C.F.R. 1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed April 23, 2003, the period of response for which is hereby extended to one month to August 23, 2003, please amend the above-identified application as follows and consider the Amendments and Remarks beginning on the following page. In addition, this response is timely filed on August 25, 2003, as August 23, 2003 falls on a Saturday and August 25, 2003 is the next succeeding day which is not a Saturday, Sunday or Federal holiday pursuant to 37 C.F.R. §1.7. Applicants thank the Examiner for the telephone interview of August 22, 2003 during which the Office Action, the cited references, and the claims were discussed in detail. In accordance with MPEP Section 713.04, the substance of the telephone interview is included in the Remarks section of this response.

AMENDMENT TO THE TITLE

Please amend the title of the invention as follows:

A ~~Multi-Beam~~ Probe Card With Removable Head Plate Containing Multiple Beam Assemblies With Multiple Probes For High Parallel Testing

AMENDMENTS TO THE CLAIMS

1. (Currently amended): A probe card for testing an integrated circuit, the probe card comprising:

a head plate having an opening;

a plurality of rectangular beam ~~assembly~~ assemblies mounted to the head plate and disposed across the opening of the head plate, wherein each of the plurality of beam assemblies is substantially parallel; ~~and~~

a plurality of probe needles extending through the rectangular beam ~~assembly~~ assemblies, wherein each probe needle has a first end extending through one of the rectangular beam ~~assembly~~ assemblies and a second end for contacting the integrated circuit; and

wherein each of the rectangular beam assemblies comprises:

a support beam removably mounted to the head plate; and

a probe guide mounted to the support beam, wherein the first end of each probe needle extends through the probe guide.

2. (Cancelled)

3. (Original): The probe card of claim 2, wherein the support beam comprises a steel beam.

4. (Original): The probe card of claim 2, wherein the probe guide has a plurality of pre-drilled through-holes for receiving the first end of each probe needle.

5. (Original): The probe card of claim 1, wherein the probe needles comprise cantilever probe needles.

6. (Currently amended): The probe card of claim 1, wherein each of the rectangular beam ~~assembly~~ assemblies has a probe needle pitch of less than approximately 100 microns.

7. (Cancelled)

8. (Currently amended): The probe card of claim ~~7~~ 1, wherein the plurality of probe needles are disposed in a high density array and wherein each probe needle comprises a cantilever mounted pin.

9. (Currently amended): The probe card of claim 8, wherein each rectangular beam assembly has approximately 800 – 2500 probe needles.

10. (Currently amended) A probe card assembly for providing temporary electrical connections to an integrated circuit, the probe card assembly comprising:

a sub-structure; and

a probe card comprising:

a head plate removably mounted to the sub-structure, wherein the head plate has an opening and is a separate component from the sub-structure;

a plurality of rectangular beam ~~assembly~~ assemblies mounted to the head plate and disposed across the opening of the head plate, wherein each of the plurality of rectangular beam assemblies is substantially parallel and comprises a support beam removably mounted to the head plate and a probe guide mounted to the support beam; and

a plurality of probe needles extending through the rectangular beam ~~assembly~~ assemblies.

11. (Cancelled)

12. (Original): The probe card assembly of claim 10, wherein the sub-structure is a printed circuit board .

13. (Currently amended): The probe card assembly of claim 12, wherein each probe needle has a first end and a second end, wherein the first end extends through one of the rectangular beam ~~assembly~~ assemblies for contacting the printed circuit board and the second end contacts the integrated circuit.

14. (Original): The probe card assembly of claim 13, wherein the second end forms a solderless contact with the integrated circuit.

15. (Currently amended): A system for simultaneous testing of a plurality of devices, the system comprising:

a probe card assembly comprising:

a sub-structure;

a head plate removably mounted to the sub-structure, wherein the head plate has an opening and is a separate component from the sub-structure; and

a plurality of rectangular beam assemblies mounted to the head plate and disposed across the opening of the head plate wherein each of the plurality of rectangular beam assemblies is substantially parallel, each rectangular beam assembly comprising:

a support beam; and

a probe guide mounted to the support beam; and

a plurality of cantilever probe needles extending through the probe guide;

an automatic test equipment for receiving and analyzing electrical signals from the probe card assembly; and

an interface assembly for connecting the automatic test equipment to the probe card assembly.

16. (Currently amended): A method of manufacturing a probe card comprising the steps of:

(a) providing a head plate having an opening;

(b) providing a probe needle having a first end and a second end;

(c) inserting the probe needle through a rectangular beam assembly, such that the first end of the probe needle extends through the rectangular beam assembly; and

(d) mounting the rectangular beam assembly on the head plate such that the rectangular beam assembly is disposed across the opening of the head plate; and

(e) repeating the mounting step for a plurality of rectangular beam assemblies, wherein the rectangular beam assemblies are configured substantially parallel to each other.

17. (Currently amended) The method of claim 16, wherein the step of inserting comprises inserting the probe needle through a probe guide, such that the first end of the probe needle extends through the probe guide; and further comprising the step of mounting the probe guide to a support beam, such that one of the rectangular beam ~~assembly~~ assemblies is formed.

18. (Original): The method of claim 17, further comprising the step of drilling a through-hole into the probe guide, wherein the through-hole is for receiving the first end of the probe needle.

19. (Original): The method of claim 16, wherein the probe needle comprises a cantilever probe needle.

20. (Cancelled)